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ABSTRACT

A feasibility plan is presented for a California comprehensive student information study that would identify factors affecting students' progress through California's entire educational system. The feasibility plan identifies: (1) potential improvements, (2) the study design required to achieve them, (3) the cost of implementing the design, including savings resulting from reduced duplication of effort, (4) a schedule for implementing the study, and (5) conclusions and recommendations for further state and segmental initiatives for improving student information for public educational policy planning. Included is an overview of study objectives, related research questions, and required data elements. For 30 student characteristics, 6 institutional characteristics, and 6 community characteristics, a chart indicates the educational entity that currently has the data elements needed for the comprehensive study. The text of California Assembly Bill 880 is appended, along with a consultant's report on the cost of implementing a uniform student identification system. Also appended is a background paper on the feasibility plan that includes information on study objectives, existing student databases, new data elements, and alternative mechanisms for collecting and reporting information. (SW)

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Summary

This report fulfills the Commission's responsibilities under Assembly Bill 880 to present a feasibility plan for a study to provide comprehensive information about factors that affect students' progress through California's education system, from elementary school through postgraduate education.

This feasibility plan discusses the potential improvements in understanding the educational process and its impact on students that a comprehensive study could provide, the study design required to achieve them, the cost of implementing this design, a schedule for implementing the study, and conclusions and recommendations.

Based on an intersegmental review of the plan and the current status of existing student information systems, the Commission recommends that a one-time comprehensive study *not* be undertaken at this time. Rather, it proposes that the State develop a uniform student information system which will permanently improve reporting capabilities and provide a more accurate and uniform basis for all policy analyses. It also recommends that an intersegmental task force be appointed and charged to (1) identify a core of common information items to be available for all students in public education in California, (2) develop a mechanism to ensure the availability of this information within every public institution, and (3) define the concomitant annual reporting requirements. It then recommends that the four segments of public education develop a joint Budget Change Proposal for the 1987-88 Budget in order to establish a uniform student identification system for the State, and it notes that this system should guarantee the privacy of individual student identity and limit access to its data.

The Commission adopted this report on March 17, 1986 for transmittal to the Legislature, Governor, and other interested parties. Additional copies of the report may be obtained from the Publications Office of the Commission. Further information about the report may be obtained from Suzanne Ness, the public information officer of the Commission, at (916) 322-0145.

FEASIBILITY PLAN FOR A COMPREHENSIVE STUDENT INFORMATION STUDY

A Report to the Legislature and Governor in Response to Assembly Bill 880 (1984)

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
Second Floor • 1020 Twelfth Street • Sacramento, California 95814

COMMISSION REPORT 86-8
MARCH 1986

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CONTENTS

Potential Improvements	1
Comprehensive Study Design	3
Cost of the Comprehensive Study	4
Implementation Schedule	4
Conclusions and Recommendations	7
Appendix A: Assembly Bill 880	9
Appendix B: Background on the Feasibility Plan for a Comprehensive Student Information Study	13
Appendix C: AB 880 Advisory Committee	27
Appendix D: Cost of Implementing a Uniform Student Identification System: A Consultant Report	29

FEASIBILITY PLAN FOR A COMPREHENSIVE STUDENT INFORMATION STUDY

Education Code Sections 99170-99174, enacted through Assembly Bill 880 (Vasconcellos; attached as Appendix A) directed the California Postsecondary Education Commission to "develop a feasibility plan for a study to provide comprehensive information about factors which affect students' progress through California's educational system, from elementary school through postgraduate education." In this report, the Commission seeks to fulfill its responsibilities under this legislation.

Determining the feasibility of a comprehensive student information study for California requires the assessment of the potential benefits or improvements in educational policies and programs resulting from the study in light of its cost. This feasibility plan identifies (1) these potential improvements, (2) the study design required to achieve them, (3) the cost of implementing this design, including any savings resulting from reduced duplication of effort, (4) a schedule for implementing the study, and (5) conclusions and recommendations for further State and segmental initiatives for improving student information for public educational policy planning.

Potential improvements

In the 1986-87 Budget Bill, the Governor proposes to spend $21.6 billion, or 55 percent of the State's General Funds, on education. This proposed budget provides funds for new initiatives designed to improve student retention, including $14 million for a dropout prevention and recovery program in secondary and elementary schools. Higher education would also receive additional funds for student affirmative action efforts and Community College transfer centers. However, the State currently has no means for accurately determining the movement of students into, among, and through institutions of public education.

In addition to providing a basis for using valuable educational resources more effectively, the effort to better understand student behavior is spurred on by at least two other policy concerns: (1) the education reform effort initiated in California by Senate Bill 813 and followed by many related activities affecting elementary, secondary, and postsecondary education; and (2) vast changes in the social, cultural, and economic composition of the groups of students moving through the education system. The nature of current student information systems are inadequate for assessing the effects of many of the education reforms on the educational progress and achievement of these students. Most information available is reported for large groups of students, such as Black students, women, or sophomores. If a specific effort is particularly beneficial or harmful to particular students, the current information system will not identify it. Those efforts that do examine individual experiences are isolated snapshots of behavior or achievement. The rapidly changing environment makes valid projections of future behavior or achievement from these snapshots impossible.

Assembly Bill 880 specified three broad objectives for the comprehensive study that focus on improving understanding of complex personal behaviors of students as they related to school and work decisions.

1. Improved understanding of the causes of differential attendance at all levels of education, to assist with the identification and evaluation of efforts to improve persistence toward obtaining a diploma, certificate, or degree.

2. Improved understanding of differences among subgroups in course selection patterns, academic aspirations, and their subsequent influence on occupational choice and satisfaction.

3. Improved understanding of the bridges and barriers encountered by students as they progress through their education, with particular emphasis on those factors and programs which affect students' transition from secondary to postsecondary institutions and transfer between institutions and segments of postsecondary education.

Many possible approaches exist for accomplishing these objectives as well as providing answers to a multitude of more specific research questions. Display 1 on page 2 and 3 presents the study objectives,

DISPLAY 1 Overview of Study Objectives, Related Research Questions, and Required Data Elements

OBJECTIVES →	RESEARCH QUESTIONS →	DATA ELEMENTS
Improved understanding of:		
1. Causes of differential attendance at all levels of education and	1.1 What proportion of students at various educational levels actually leave school never to return as compared with those who use alternative educational programs to achieve their objectives, and how do these rates vary by student subgroup?	1.1a Student unique identifier 1.1b Student and parent educational aspirations 1.1c Demographic,social and economic characteristics
identification and evaluation of efforts to improve persistence to diploma, certificate, and degree.	1.2 What supplementary educational programs are most effective in retaining students in school or college and do these differ for different student subgroups ?	1.2a Regular and supplementary educational program participation
2. Differences among subgroups in course selection patterns	2.1 What types of academic experiences are most likely to lead to receipt of a high school diploma, Community College certificate or associate degree, baccalaureate degree, graduate degree, occupational upward mobility, and occupational satisfaction and how do these vary by student subgroup?	2.1a Student's academic record for all levels completed 2.1b Employment status 2.1c Occupation type and salary 2.1d Continuity of employment 2.1e Job and salary history
academic aspirations	2.2 What nonacademic factors correlate with these achievements?	2.2a Occupational aspirations
and their subsequent influence on occupational choice and satisfaction.	2.3 Do students find employment after completing school and is it appropriate to area and level of their education? What other factors affect their school to work transition?	2.3a Access to and use of counseling, placement, and career education 2.3b State & local economic conditions
3. Bridges and barriers encountered by students as they progress through their education, with particular emphasis on	3.1 To what extent do those who drop out of elementary or high school utilize alternative educational opportunities such as continuation high schools, adult schools, or community colleges, to earn their high school diploma or GED, and does this use vary by student subgroup? To what extent do these individual pursue postsecondary education?	3.1a Availability, eligibility, and use of supplementary educational programs

continued

DISPLAY 1, continued

OBJECTIVES →	RESEARCH QUESTIONS →	DATA ELEMENTS
factors and programs which affect students' transition from secondary to postsecondary institutions	3.2 How will eligibility rates and admission rates for four-year public universities change as new admission requirements become effective? To what extent are differences in eligibility by student subgroup attributable to personal choice, inadequate counseling, and academic underpreparedness?	3.2a Segmental or institutional admission requirments
and transfer between institutions and segments of postsecondary education.	3.3 To what extent do students attend multiple segments and institutions of postsecondary education in achieving their educational objectives? What effect does this transfer behavior have on time to degree? Are there specific institutional policies or practices that facilitate or inhibit student choice?	3.3a Unit load 3.3b Time to degree 3.3c Transferred units and grade point average 3.3d Articulation agreements 3.3e Transfer counseling
	3.4 What is the most efficient route for initially UC or CSU ineligible students to earn baccalaureate degrees -- special action admissions or community college transfer -- and does this vary by student subgroup?	3.4a Student's satisfaction with educational opportunities and achievement

a set of illustrative research questions responsive to those objectives, and a cumulative listing of information items or "data elements" needed to develop meaningful answers. The next section of this plan examines the correspondence between the required and available information.

Comprehensive study design

The most effective and efficient design for a comprehensive study would be a modified longitudinal study that would initiate data collection at several educational levels concurrently and then would follow each set of students through the education system and on to work at least until their progress overlaps that of the student group one level above them. The student samples would be drawn from a highly stratified statewide probability sample of universities, colleges, and high schools with their feeder junior high schools and elementary schools. The samples would come from those enrolled in third grade, eighth grade, eleventh grade, and the second year of college in order to coincide with other major data collection activities and with those ages at which major shifts in educational behavior are believed to occur. Sample sizes would be in the range of 25,000 to 60,000 depending on grade level, yielding a total sample of 150,000 to 200,000 student records to be traced for a minimum of five years. (Appendix B describes in detail the considerations for and components of a comprehensive study design.)

The academic record of the student in the first sampling year would provide basic demographic information, such as sex, ethnicity, birth date, as well as academic characteristics, such as courses taken with grades earned, test scores, and participation in sup-

plementary educational programs, and institutional characteristics. This information would be updated annually with information from the institution of current enrollment. These data would need to be supplemented by information not routinely available, such as students' or former students' social and economic circumstances and characteristics of the community. To gather the facts on individuals' circumstances, annual or biennial surveys of students, former students, and/or their parents or guardians would be required to trace changes in their conditions, aspirations, and non-academic achievements. Community characteristics would be gathered as available from other information sources, such as Current Population Surveys of the United States Bureau of the Census.

Currently available student information

All education institutions maintain information about their students, but individual institutions maintain considerably more detailed information than is available in segmental files. Elementary and secondary schools' student data are aggregated into school and district summaries and the comprehensive student information files in public colleges and universities contain individual student records, although these records are not uniquely coded. The nature of this information, both in the ways items are defined and the mechanisms used to maintain them, varies enormously. Display 2 on pages 5 and 6 illustrates the availability of student information needed for a comprehensive study by each of California's four major public segments of education.

Assembly Bill 880 requires assessment of the feasibility of learning much more than is now known about why California students behave as they do, but the current segmental information systems do not provide reliable or adequate information about individual student behavior. More accurate information is needed about the movement of students into, among, and through the various levels and segments of education as the foundation for meaningful hypotheses about why such behavior takes place.

Cost of the comprehensive study

A longitudinal study requires that each student in the sample has a uniquely identifying code number to ensure that all pertinent pieces of data for that student are linked to the correct file over time. Such a coding system for students does not currently exist in California. At a minimum, the students in the sample would need a unique identification code that participating institutions would maintain as part of those student records.

Based on current knowledge of student information systems in California, preliminary estimates of the cost to design the study would be approximately $500,000. The estimated annual study costs for a sample of 200,000 students would be approximately $10 per surveyed student, or approximately $2 million.

Segment specific supplementary costs may also be necessary for modifying existing systems to accommodate study demands. School district personnel estimate that the cost of maintaining an efficient, comprehensive student data system would be between $12 and $16 per student or a total cost of $50 million to $84 million for all elementary and secondary students in California. No separate estimate is available for higher education, but a similar per-student cost is likely -- generating a total system cost of $18 million to $24 million. Some institutions currently have data systems in place that can efficiently provide the needed information and would need little, if any, additional funding, while others would require major revisions and substantial supplementary funding. The degree to which existing support levels for student data systems would have to be augmented to meet the proposed study design would require an institutional survey of their information systems.

The administration of the study should be done by an independent, professional research organization under contract. This administrative structure would have the greatest potential of assuring that the study was viewed as credible both by those being surveyed and by policy makers interested in objective, impartial information. The contract would be structured to ensure adequate involvement of the educational segments to assure that the study results are accurate and yield maximum benefits to all educational planners and policy makers.

Implementation schedule

The development of a comprehensive study would take at least three years, as follows:

March-July 1986: Expanded feasibility assessment. During this period, each segment of public education would develop a detailed assessment of the capacity of its institutions to participate in the comprehen-

DISPLAY 2 *Availability in California's Major Public Education Segments of Data Elements Needed for the Comprehensive Study*

Data Elements	State Department of Education	California Community Colleges	The California State University	University of California
STUDENT CHARACTERISTICS				
Demographic				
1. Uniquely identifying code number		1	XXX	
2. Sex	XXX	XXX	XXX	XXX
3. Ethnicity	XXX	XXX	XXX	XXX
4. Birth date	***	XXX	XXX	XXX
5. Place of birth				
Social [2]				
6. Language used in home				
7. Parental education				
8. Parents' occupations				
9. Parental attitudes toward students' education				
10. Family structure				
11. Extracurricular activities				
12. Academic aspirations				
13. Reference group (aspirations and role models)				
Economic [3]				
14. Financial status (dependent or independent)				
15. Family income				
16. Number of dependents				
17. Student income				
18. Grants-in-aid				
19. Loans and loan indebtedness				
20. Current and preferred employment				
Academic				
21. Current education level	XXX	XXX	XXX	XXX
22. Academic record by course with grades	***	***	***	***
23. Grade-point average	***	***	XXX	XXX
24. Track or major		XXX	XXX	XXX
25. Basis of admission	n.a	n.a.	XXX	XXX
26. Attendance rate or unit load	***	XXX	XXX	XXX
27. High school of origin	n.a.	XXX	XXX	XXX
28. Last institution attended	***	XXX	XXX	XXX
29. Special or supplementary academic program participation	***	***	XXX	XXX
30. Test scores (proficiency CAP, SAT, Achievement, GRE)	***	***	XXX	XXX
INSTITUTIONAL CHARACTERISTICS				
1. Institutional code number	XXX	XXX	XXX	XXX
2. Annual enrollment, total and by ethnicity	XXX	XXX	XXX	XXX
3. Annual number of graduates, total and by ethnicity	XXX	XXX	XXX	XXX
4. Length of instructional day and year	XXX	XXX	XXX	XXX
5. Average class size or student/faculty ratio	XXX	XXX	XXX	XXX
6. Percent AFDC	XXX	XXX		
7. Teaching staff qualifications	XXX	XXX	XXX	XXX
8. Fiscal support characteristics	XXX	XXX		

DISPLAY 2, continued

Data Elements	State Department of Education	California Community Colleges	The California State University	University of California
COMMUNITY CHARACTERISTICS[4]				
1. Demographic character (ethnic and socioeconomic)				
2. Employment opportunities				
3. Parent or citizen involvement with education				
4. Tax base				
5. Geographic location				
6. Proximity to institution of postsecondary education				

XXX Available on segmental data base.

*** Available at the institution level.

n.a. Not applicable.

1. Community Colleges expected to include unique student identifier in their revised data system.
2. Social characteristics of students would need to be gathered through student or parent questionnaires.
3. Much economic information is available for financial aid recipients only.
4. Summary data can be gathered from other public information sources.

sive study, including an estimated budget that specifies what, if any, new monies are necessary and for what purposes.

June-August 1986: Development of coordinated budget change proposals. The budget requests for support of the study's central administration, as well as any supplementary segmental needs, would need to be developed in a coordinated and mutually supportive way to insure adequate funding for all functions and requirements of the study. Inadequate funding in any one component could threaten the feasibility of the entire effort because of the intersegmental nature of the study objectives.

September 1986-July 1987: Development of a detailed study implementation plan. During the budget cycle, the public segments would continue to plan cooperatively the comprehensive study methodology, so that with approval of the study budget on July 1, 1987, actual implementation of the study could begin.

July 1987-June 1988: Implementation of the study. The study's administrative staff would be designated; all sampling procedures and information collection mechanisms would be developed and produced; and sampling would begin with identified grade-level cohorts, that included the 1988 eleventh-grade class.

July 1988-June 1993: On-going study administration and reporting, assuming annual budget approval: The study would involve on-going monitoring of students' and former students' educational and occupational activities through annual updating of educational records and personal survey responses. Technical implementation reports would be produc-

ed every six months beginning in January 1988, and reports of study results would begin in January 1989.

Conclusions and recommendations

In February 1986, a broadly representative advisory committee whose members are listed in Appendix C met to review the above plan for the study. They agreed that to meet its stated objectives, a comprehensive student information study must include information far beyond that which is currently maintained in segmental administrative data bases. Defining the necessary information and developing mechanisms appropriate for collecting very sensitive data in a way that ensures full and representative participation of students from all subgroups of interest would be a formidable task, as would the appropriate interpretation of complex student behavior and its application to formulating or adjusting educational policies. Among the issues and concerns they raised was the fact that the study would not yield answers for four or five years, by which time the questions of interest may have changed. While the study would provide better and more comprehensive information about student behaviors over time than now available, after the study is completed it would yield virtually no residual improvement in understanding such student behavior in the future. The national longitudinal studies illustrate this problem. The first study began with the Class of 1972. As it was being completed, the second study was initiated with the Class of 1980, and the third study is currently planned to commence with the Class of 1988. With each study, some shift of focus and student cohorts to be studied occurred to seek answers to current questions.

These cautions do not negate the overwhelming need to improve the breadth and accuracy of student information available for educational planning,policy analysis, and development. Major changes in the composition and needs of students to be served have literally forced some institutions, districts, and segments to improve the nature and quality of their communications with institutions that serve the same students before and after them. The University of California and the California State University are continuing to improve the usefulness of the student performance information they share with their feeder high schools and Community Colleges. The Community Colleges are working on similar information sharing with high schools. While efforts are underway to coordinate these efforts, two major stumbling blocks exist: (1) the difficulty in identifying individual students as they move between and among institutions at the same or different educational level; and (2) the lack of common definitions of terms or articulation of comparability of experiences at various institutions, including course or curriculum experiences and qualification for and use of supplementary educational services.

Effective implementation of the comprehensive study would require the removal of these stumbling blocks, at least for the sample of students included in the study. In the view of the advisory committee, the additional cost of developing a system for uniquely identifying all students in the public educational system and assuring the development and maintenance of a common core of information about these students at every educational institution would be a more effective and efficient use of State resources, permanently enhancing policy makers' ability to identify and understand students' educational behavior, than a one-time study. Such a system would provide a permanent resource that would facilitate accurate reporting of annual trends and the implementation of more complex local and statewide analysis of students' behavior.

The estimated cost of developing and implementing a system for uniquely identifying all students currently enrolled in California public education institutions is between $911,000 and $673,000. The estimated annual cost of maintaining this uniform student identification system is approximately $400,000. Appendix D provides a detailed description of the system and the assumptions underlying these cost estimates.

The segment specific supplementary funding required for developing and maintaining a common core of student information to be available at every public educational institution would be similar to those described for the longitudinal study. An institutional survey of existing capabilities by each segment is necessary to estimate the level of supplementary funding required for this effort.

As a result of these considerations:

1. The Commission finds that the implementation of a comprehensive student information study as defined by this report is not as cost effective an undertaking at this time as the de-

velopment of a comprehensive student information system.

2. The Commission recommends that an intersegmental committee be appointed and charged to: (1) identify a core of the common information items to be available for all students in public education in California, (2) develop a mechanism to ensure the availability of this information within every public institution of education, and (3) define the concomitant annual reporting requirements. This committee's work should be completed by June 30, 1987.

3. The Commission recommends that the four segments of public education develop a joint Budget Change Proposal to establish a uniform student identification system for the State of California for the 1987-88 Budget in order that the new system can be in place for the 1988 reporting schedule.

4. The specifications for the uniform student identification system shall include policies and procedures necessary to guarantee the privacy of individual student identity and fully define the limitations on access to the system.

Assembly Bill No. 880

CHAPTER 1145

An act to add Chapter 4 (commencing with Section 99170) to Part 65 of the Education Code, relating to education, making an appropriation therefor, and declaring the urgency thereof, to take effect immediately.

[Approved by Governor September 28, 1985. Filed with Secretary of State September 28, 1985.]

LEGISLATIVE COUNSEL'S DIGEST

AB 880, Vasconcellos. Education.

(1) Existing law designates the California Postsecondary Education Commission as the statewide postsecondary education planning and coordinating agency and adviser to the Legislature and the Governor.

This bill would require the commission, in cooperation with the State Department of Education and public and private segments of higher education, to develop a feasibility plan, including specified elements, for a study to provide comprehensive information about the factors which affect students' progress through California's educational system, from elementary school through postgraduate education. The bill would also identify certain objectives of the comprehensive study.

This bill would require the commission to convene an advisory committee comprised of specified representatives to review the feasibility plan, and to submit the plan to the Legislature by March 15, 1986.

(2) This bill would appropriate $50,000 to the California Postsecondary Education Commission for the purposes of this bill.

(3) This bill would take effect immediately as an urgency statute.

Appropriation: yes.

The people of the State of California do enact as follows:

SECTION 1. Chapter 4 (commencing with Section 99170) is added to Part 65 of the Education Code, to read:

CHAPTER 4. COMPREHENSIVE STUDENT PROGRESS STUDY

99170. The Legislature hereby recognizes all of the following:

(a) The proportion of students who complete their high school education has been declining, and the rate of completion is particularly low among the fastest growing subgroups in the population.

(b) The factors which contribute to the progressively lower high

school graduation rates and the different graduation rates among subgroups are not well understood.

(c) California's secondary students are becoming less competitive compared with national standards of academic achievement. While this relatively lower level of academic preparation has been linked to course selection patterns and the amount of instruction received, the factors which influence course selection and other related variables affecting student performance are not well understood.

(d) The proportion of high school graduates eligible for enrollment in the state's public universities has declined since 1976. There are also significant differences in the rates of eligibility achievement of various subgroups, which are reflected in differential enrollment rates, resulting in certain ethnic groups continuing to be severely underrepresented in public universities.

(e) While the participation rate in postsecondary education remains relatively high, the rate of degree completion is relatively low in California. The consequences for both students and the state of so many students currently enrolling in college, only to drop out before completing their degrees, are not well understood.

(f) In light of the recent increase in the state's fiscal support for all levels of education, and the array of educational reform and improvement efforts being implemented at all levels of education, the Legislature needs to better understand the effect of these reforms and funding increases upon meeting the needs of both students and society. In addition, improved data on student persistence and educational quality will complement the work of the Commission for the Review of the Master Plan for Higher Education.

99172. The California Postsecondary Education Commission, in cooperation with the State Department of Education and the public and private segments of higher education, shall develop a feasibility plan for a study to provide comprehensive information about the factors which affect students' progress through California's educational system, from elementary school through postgraduate education. The feasibility plan shall do all of the following:

(a) Recognize the need for the study to provide information regarding, but not limited to, all of the following factors:

(1) Student progress through elementary and secondary school, including an assessment of those elements of categorical aid programs which enhance pupil progress.

(2) The transition from secondary to postsecondary education or employment.

(3) Transfer among, and retention within, the various segments of postsecondary education, and completion of degree programs.

(b) Recognize the need for the study to examine those factors which cause or assist students to continue their education, and, alternatively, the factors which contribute to the interruption or termination of elementary, secondary, and postsecondary education.

(c) Recognize the need for the study to provide information

about students, including their course selection patterns, and their demographic, socioeconomic, and academic performance characteristics.

(d) Delineate all of the following:

(1) The nature and size of the sample of students to be included in the study.

(2) The methods to be used in data collection.

(3) The frequency of data collection.

(4) A schedule for the implementation of the study.

(5) The estimated cost of implementation.

(e) Clearly state the responsibilities of the commission, the State Department of Education, and the segments of postsecondary education with regard to the study, including contribution to the estimated cost of its implementation.

(f) Identify any potential savings to be realized from the reduction of duplicate reporting requirements that the comprehensive study might permit.

99174. The objectives of the comprehensive study shall include, but not be limited to, all of the following:

(a) Improved understanding of the causes of differential attendance at all levels of education, to assist with the identification and evaluation of efforts to improve persistence towards obtaining a diploma, certificate, or degree.

(b) Improved understanding of differences among subgroups in course selection patterns, academic aspirations, and their subsequent influence on occupational choice and satisfaction.

(c) Improved understanding of the bridges and barriers encountered by students as they progress through their education, with particular emphasis on those factors and programs which affect students' transition from secondary to postsecondary institutions and transfers between institutions and segments of postsecondary education.

99176. (a) The California Postsecondary Education Commission shall convene an intersegmental advisory committee to review the feasibility plan developed pursuant to Section 99172. The advisory committee shall be comprised of representatives of the State Department of Education, the Department of Finance, school districts, public and private postsecondary educational institutions, students enrolled in postsecondary educational institutions, business, industry, and the fiscal, education policy, and appropriate joint committees of the Legislature.

(b) The commission shall submit the feasibility plan to the Legislature on or before March 15, 1986.

SEC. 2. The sum of fifty thousand dollars ($50,000) is hereby appropriated from the General Fund to the California Postsecondary Education Commission for purposes of Chapter 4 (commencing with Section 99170) of Part 65 of the Education Code.

SEC. 3. This act is an urgency statute necessary for the

immediate preservation of the public peace, health, or safety within the meaning of Article IV of the Constitution and shall go into immediate effect. The facts constituting the necessity are:

In order to authorize the California Postsecondary Education Commission to develop the feasibility plan for a comprehensive study on student progress at the earliest possible date, so that the commission may submit the feasibility plan to the Legislature by the March 15, 1986, deadline imposed by this act, it is necessary that this act take effect immediately.

O

APPENDIX B Background on the Feasibility Plan for a Comprehensive Student Information Study

This appendix describes in detail the considerations for and components of a comprehensive student information study. It reviews the objectives of the comprehensive study, the types of information required to achieve these objectives, presently available information, alternative study designs that would provide the needed information, and the major issues incumbent in undertaking a comprehensive student information study.

Objectives of the comprehensive study

Assembly Bill 880 presents three major objectives for the comprehensive study:

> (a) Improved understanding of the causes of differential attendance at all levels of education, to assist with the identification and evaluation of efforts to improve persistence towards obtaining a diploma, certificate, or degree.
>
> (b) Improved understanding of differences among subgroups in course selection patterns, academic aspirations, and their subsequent influence on occupational choice and satisfaction.
>
> (c) Improved understanding of the bridges and barriers encountered by students as they progress through their education, with particular emphasis on those factors and programs which affect students' transition from secondary to postsecondary institutions and transfer between institutions and segments of postsecondary education.

In short, the study must seek to identify the factors that cause or assist students to continue their education and, alternatively, the factors that contribute to the interruption or termination of their schooling. The study must also provide the analytical bases for describing differences in:

1. Student progress through elementary and secondary school, including an assessment of those elements of categorical aid programs which enhance student progress,
2. The transition from secondary to postsecondary education or employment,
3. Their transfer among, and retention within, the various segments of postsecondary education, and completion of degree programs.

The dimensions along which differences must be examined are:

1. Student characteristics, including demographic, social, and economic characteristics, their course selection patterns, and their record of academic performance;
2. Institutional characteristics, including size, ethnic composition of student body, academic program components, staffing, and categorical aid; and
3. Community characteristics, including demographic, social, economic, and geographic variables.

While much of this information may be available for any given cohort of students at a specific education level, no system currently exists in California that follows students over time among institutions to know how their experiences and opportunities at one level affect their later experiences and opportunities.

Existing student data bases

All educational segments currently gather substantial amounts of information about their operations, including information about the clientele they serve. In order to assess the feasibility of a comprehensive student information study, the capabilities of these existing student data systems must be understood. The extent to which they could be modified to meet

the demands of such a study has significant implications for its feasibility in a qualitative as well as a pecuniary sense. The following paragraphs identify current segmental student data bases and their capacity to accommodate the demands of the study.

Elementary and secondary school data bases

The California Basic Educational Data System (CBEDS), administered by the California State Department of Education, collects information about school enrollment and staff in the fall of each year. On the School Information Form, all public schools report student enrollment by grade level, ethnicity, and sex and their number of classified staff by sex and ethnicity.

Public high schools report:

1. Enrollment in chemistry, physics, and third- and fourth-year mathematics by ethnicity and sex (only in 1985);
2. Number of graduates by sex and ethnicity during the previous year;
3. Number of graduates certified as completing the "a-f" subject requirements of the University of California by sex and ethnicity (only in 1985):
4. Number of graduates meeting all of the State Board of Education Model Curriculum Standards by sex and ethnicity (only in 1985).

Elementary schools report their instructional time in specified subject areas in grades two, four, six, and eight.

The County/District Information Form and the Professional Assignment Information Forms provide other information that may be useful in describing or assessing the institutional environment. None of the CBEDS forms, however, include any individual student information. Instead, they obtain only aggregated school data on consecutive cohorts of students and on school staff. Schools must, of course, analyze individual student records to respond to some questions on the School Information Form.

The State Department of Education uses CBEDS data as part of its annual School Performance Reports. In a 1985 review of these performance reports, however, a task force of school administrators indicated that the lack of longitudinal data on students was a serious handicap to measuring institutional change and improvement.

Individual professional staff information is collected as part of CBEDS and the Department has developed a privacy notification in conjunction with staff completion of this information. Under specific statutory requirements for student information, a similar protocol could be developed for the release of selected student performance information.

The California Assessment Program (CAP), also administered by the State Department of Education, is an annual State testing program that provides overall school-level achievement scores in reading, language, and mathematics for third, sixth, eighth, and twelfth grades. CAP assesses the effectiveness of school-level basic skills programs in every public elementary and high school in California but it is not designed to assess the progress of individual students. In addition to achievement scores, the program gathers information about student attitudes toward reading, writing, and mathematics and periodic information about other factors related to school performance such as television watching, homework, and recreational reading. While the program provides some useful information for understanding students' educational achievement, the varying composition of the sets of students involved at each grade level makes comparison among groups over time unreliable.

California Community Colleges

The Chancellor's Office of the California Community Colleges maintains a student data file that includes basic demographic and academic characteristics for every student enrolled for the last seven years. The demographic elements include sex, ethnicity, and date of birth and the academic characteristics are current educational level, number of units attempted, educational goal, high school of origin, education credentials at entry -- high school diploma, GED, bachelor's degree, or the like -- and last institution attended. The Community Colleges also periodically participate in surveys, such as the Field Survey and the Student Expenses and Resources Survey (SEARS) that provide information on the social and economic characteristics of representative samples of students.

The Chancellor's Office also maintains at least three other data bases that provide information on the educational environment: (1) course activity measures, (2) instructional and support staffing, and (3) district expenditures and budget data. However,

because of differences in the structures of these data bases, differences in the data elements included, their definitions and the detail required, linking sets of information from these files with each other and with the student file is not currently possible.

As is the case for elementary and secondary school districts, the quality of the Chancellor's Office data bases depends on the reporting capabilities of the local Community College districts. Districts vary widely in the nature and capabilities of their computer facilities, and some small districts with no computing capabilities submit their reports to the Chancellor's Office in hard copy only. The resulting incompatibility requires adjustments by the Chancellor's Office that can interfere with timely reporting. Other disruptions in reporting may occur when districts change computer hardware or upgrade their existing facilities.

Depending on the extent of the final study design, many districts would need to modify their computer reporting capabilities in order to participate in the comprehensive study. The extent of these modifications would vary among districts and would have implications for both the implementation schedule and the fiscal requirements of the study. However, several initiatives underway within Community Colleges could facilitate the implementation of a comprehensive study involving their students.

One of the first initiatives announced by Chancellor Smith was major improvements in the collection and dissemination of student information to insure more timely reporting and to expand and improve its usage. Recent legislation provided approximately $360,000 for information systems improvement of which $160,000 is being used to restructure historical management data to improve the system's capability to produce profiles of students, course offerings, staffing, and finance. The remaining funds will support the development of a plan for an integrated management information system that will include the capability for longitudinal tracking of students through the use of unique student identification numbers, integration of existing data systems, improved access both at the statewide level as well as district level for planning and evaluation, and improvements in the quality and timeliness of data collected. The Board of Governors will seek funding to implement this plan in time for the 1987-88 reporting period.

Implementation of such improvements in the capabilities of the Chancellor's Office data systems and the concomitant improvements in district reporting will greatly enhance the Community Colleges' ability to participate in a comprehensive student information study. Nonetheless, staff of the Chancellor's Office have expressed concern about the potential increase in competition for scarce financial resources engendered by the proposed study. Efforts to insure compatibility between the proposed study and the information system improvements would enhance support for both undertakings.

The California State University

The California State University currently relies on its Enrollment Reporting System (ERS), a corporate data system maintained by the Office of the Chancellor for compliance with federal and State reporting requirements and university-wide planning and analysis related to student-specific issues. This data base includes basic demographic characteristics -- sex, ethnic group, and birth date. It uses students' Social Security numbers as its unique student identifiers. The academic characteristics of students on the file include:

1. Institution at which eligibility for the State University is established, which usually is the last institution of attendance,
2. Current grade level,
3. Current major,
4. Cumulative units and grade point average including transfer units and grade point average,
5. Basis of admission,
6. EOP or Disabled Program participation,
7. Admission test results when they were required for determination of eligibility, and
8. Segmental placement test results -- TOEFL, ELM, and EPT -- as available.

While these data do not include students' socioeconomic characteristics, the State University collects some economic information from financial aid recipients and maintains it in a separate data base -- the State University Grant System (SUGS). In addition, information from a sample of students about their satisfaction with their education and aspirations, such as the State University collects through its

Student Needs and Priorities Survey (SNAPS), could be linked to other student information by use of Social Security numbers.

The State University can readily provide data for nearly all of the institutional characteristics important to the proposed comprehensive study. Its Enrollment Reporting System can provide summary data on enrollments and graduation rates, and its Academic Planning Data Base System can provide information about faculty, such as student/faculty ratio by level and discipline, faculty credentials by tenure track, and average faculty salaries by rank and step.

An administrative issue with implications for the State University's capacity to participate in a comprehensive study is its planned implementation of a new comprehensive Administrative Information Management System (AIMS) during 1989. This system would be an integrated replacement for all of the State University's existing information systems. While data for its existing information systems flow from the campuses to the Office of the Chancellor, the new system would be based at the campuses, using specifications developed by the Office of the Chancellor so that management information could be prepared and forwarded to the office in a format responsive to its reporting responsibilities.

In anticipation of this change, an administrative directive not to modify or expand existing data systems is in force throughout the State University. Given that certain data elements important to the comprehensive study are not currently available in the existing State University data, an exception to this administrative directive would need to be sought in order to include the necessary data elements if the study were implemented prior to 1989.

A second issue related to State University participation is the level of impacted computer hardware on its campuses and in the Office of the Chancellor. Exceeding storage and analytic capacities of current machines is a problem. Some campuses have worked with their computer suppliers to upgrade their machines; others have yet to undertake this effort. These upgradings may be important for campuses' participation in the comprehensive study. The design of the study will need to take into consideration the variability in capabilities of campuses to provide the needed information about their students.

University of California

The Corporate Student System of the University of California interlocks three major sources of information -- (1) the application files for all applicants, (2) the registration records for enrolled students, and (3) financial aid information for all aid recipients. Student identification codes are determined at each campus. While Social Security numbers appear on such student records as financial aid files, they are not consistently enough used to serve as systemwide identification numbers. Annual data can be linked to subsequent data, providing the ability to track the performance and persistence of various groups of students across years, but the absence of unique student identification numbers prohibits the identification of individual patterns of persistence or tracking of students among campuses of the University or between the University and other segments.

The Corporate Student System includes basic demographic information on students' sex, ethnicity, and birth date. The academic characteristics included vary by students' tenure within the University. For all students, these characteristics include admission test scores, current grade level, major, units attempted, grade points earned, basis of admission, high school eligibility status, last institution attended, prior institution in which sufficient units were earned to qualify for admission (the number of required units varies by campus), high school from which student graduated or last attended, EOP or Students with Disabilities program participation, and prior participation in supplementary educational programs such as Outreach, MESA, and Cal-SOAP. More information, including first-year courses with grades, is recorded for first-time students.

While the Corporate Student System does not include any socioeconomic data for all students, some information of this type is available for financial aid recipients. Furthermore, the University is exploring the possibility of accessing the information that many students provide on the Student Descriptive Questionnaire when they take the Scholastic Aptitude Tests. This questionnaire provides voluntary information from students about their economic and social backgrounds and their educational and occupational aspirations.

The University can readily provide institutional information routinely required through HEGIS. It does

not have information about average class size, however, and it reports student/faculty ratio only by undergraduate, graduate, and professional levels.

The University's staff are interested in participating in a comprehensive student information study, but they have raised four major concerns about its feasibility:

1. Its direct and indirect costs, in light of competing institutional and State priorities for limited financial resources;
2. Legal and ethical issues facing institutions in the use of student records;
3. Significant institutional involvement in the design of the system, access to the data, and control of how the information is used; and
4. Assurance that the study has a reasonable probability of improving understanding of complex educational behaviors -- the goal of the study, as stated in the legislation.

Independent colleges and universities

Approximately 9 percent of California's high school graduates receive their diplomas from private high schools, and approximately 10 percent of the Californians enrolled in higher education institutions attend private colleges and universities. Participation of these institutions and their students in a student comprehensive information study is problematic.

Because the issues of primary concern in the study are public policy issues, some rationale exists for restricting the original sample of students in the study to those enrolled in public institutions. Nonetheless, some of these students would undoubtedly enroll for a time in a private school or college. Some of these private institutions would enthusiastically participate in a statewide longitudinal study, while others probably would not -- either for ethical or economic reasons. Because private institutions do not receive any form of State assistance, no legal basis exists for insuring their participation. The staff of the study could seek to assure their participation by identifying possible benefits to them, such as better understanding of the backgrounds, needs, aspirations, and success of their students and of potential students. In addition, staff could ask students to supply information on their private postsecondary educational experiences directly. In either case, however, some loss of information would be likely and would reduce somewhat the precision of understanding the full complexity of student educational behavior.

Identifying needed data elements

The data needed for a comprehensive study can be grouped in three major categories: students, institutions, and communities.

Student characteristics

While the specific student characteristics will vary somewhat by educational level, the necessary elements in this category are as follows:

Demographic

1. Uniquely identifying student code number
2. Sex
3. Ethnicity
4. Birth date
5. Place of birth

Social

6. Language used in home
7. Parental education
8. Parents' occupations
9. Parental attitudes toward, and support of, students' education
10. Family structure
11. Extracurricular activities
12. Academic aspiration
13. Reference group (aspirations and role models)

Economic

14. Financial status (dependent or independent)
15. Family income
16. Number of dependents
17. Student income
18. Grants-in-aid
19. Loans and loan indebtedness
20. Current and preferred employment

Academic

21. Current education level
22. Academic record by course with grades
23. Grade-point average
24. Track or major
25. Basis of admission
26. Attendance rate or unit load
27. High school of origin
28. Last institution attended
29. Special or supplementary academic program participation

30. Test scores (proficiency, CAP, SAT, achievement, GRE)

Institutional characteristics

1. Institutional code number
2. Annual enrollment, total and by ethnicity
3. Annual number of graduates, total and by ethnicity
4. Length of instructional day and year
5. Average class size (elementary and secondary school) or student/faculty ratio (postsecondary)
6. Percent AFDC
7. Teaching staff qualifications
8. Fiscal support characteristics

Community characteristics

1. Demographic character (ethnic and socioeconomic)
2. Employment opportunities
3. Parental support of, or citizen involvement with, education
4. Tax base
5. Geographic location
6. Proximity to institutions of postsecondary education

Collecting new data elements

For the comprehensive study, currently available student information would need to be supplemented by new student-specific information. Among the most significant data elements not currently available are students' course-taking patterns and attainment, their academic and occupational aspirations and choices, and their social and economic characteristics. Some of these data could be gathered from students' academic records, but others would be available only through direct surveys of students and their parents. Thus a comprehensive study would require annual submission of students' academic records and responses of students and their parents to annual or biennial surveys.

Academic records are essential components of the comprehensive study, since they form the foundation for decisions made for and by students. But these records are classified as confidential, and access to them involves several legal problems, as will be clear from a subsequent section of this report.

Surveys of students, parents, teachers, and counselors are useful for gathering attitudinal, socioeconomic, and other information not routinely available on student records and for providing the context for the academic record information. Furthermore, once students leave the educational system, follow-up surveys are virtually the only way of gathering information about their occupational choices and satisfaction. However, surveys have at least two major weaknesses -- nonresponse and response bias.

Nonresponse

Problems of student nonresponse can be somewhat mitigated by administering student surveys during class time, since follow-up efforts are necessary only for students who were absent that day. Classroom administration is ineffective, however, if participating students are interspersed among nonparticipating students.

Problems of nonresponse are much greater for surveys of non-students such as graduates, those who have left school, and parents. Mailed surveys are often considered successful if they can achieve a response rate of 60 percent. Interview surveys usually yield far higher response rates, yet even they suffer attrition rates of 5 to 10 percent over five years and, of course, their administrative costs are much higher than for mailed surveys. Using either method, standard statistical techniques exist for describing the similarities and differences between respondents and nonrespondents and estimating missing information, if sufficient baseline information is available for all participants.

Response bias

A more subtle and thus less easily resolved problem is that of response bias. This problem can take several forms. For example, people tend to put themselves in the best possible light and are generally not likely to report negative events or attitudes, particularly if they perceive their questioner may have some influence over their future options. In addition, participation in the study, in and of itself, may possibly influence participants' responses and even their educational behavior. These possibilities must be taken into account when interpreting any study based on self report. Their influence cannot be measured statistically, however, and results cannot be adjusted to overcome them.

Alternative study designs

The objectives of the proposed comprehensive student information study require the development of a

system capable of relating student behavior or experiences at one educational level to opportunities and behaviors at subsequent levels. Aggregated data -- the type currently most commonly available -- does not permit the identification of such relationships. An adequate study requires the unique identification of student-specific records and the linking of these records over time to provide a longitudinal examination of educational and occupational behavior.

A traditional longitudinal design would follow a single cohort of students from elementary through graduate school. Given that education policy makers need improved information for decision making as quickly as possible, such a design is clearly inefficient and ineffective. Thus a modified longitudinal design is the only feasible choice, and the remainder of this discussion assumes the implementation of such a design. This design would initiate data collection at several educational levels concurrently and then follow each set of students through the educational system at least until their progress overlaps that of the student cohort one level above them. If the design was properly constructed, linkages between the cohorts could provide reliable information over the whole education continuum. If fiscal support for the study could be maintained until the overlap of two sets of students' experiences was complete, the linkages between cohorts could be validated.

Sampling procedures

Several options exist for sampling procedures within this design. The first is a completely randomized procedure in which the total number of students at a given educational level are identified and each is given an unique index number, with the sample of students to be included in the study selected at random according to the numbers on a random number table. While such a completely randomized design has the highest probability of insuring a representative sample of students, it has some weaknesses for the proposed study. It might result in some schools, such as small rural schools, having no representation in the study. In addition, it poses several operational difficulties, since data must be collected locally yet the sampling methodology and techniques must be specified at the statewide level. For example, errors in class size easily identified at the school level may be completely unknown at the statewide level; yet such errors would undermine the randomization process and create problems in developing reliable estimates for the total population.

A second sampling procedure, which the California Postsecondary Education Commission implemented for its 1983 High School Eligibility Study, insures representation of all schools. From within each school's set of students at any given education level, a random sample of students can be chosen. While the sampling instructions are based on historical information available about class size, the design includes sufficient flexibility in application to handle changes in class size without affecting the sample's integrity. The sampling rate can be varied by school to insure that a sufficient number of students with specific characteristics are included in the statewide sample to accommodate comparisons among students who differ on these characteristics. The sampling instructions are straightforward and can be readily and reliably implemented by school personnel. This sampling design provides highly reliable data for statewide analyses of student specific differences. However, it does not provide a basis for analysis of school-specific variables that may be related to students' progress through the educational system.

A third alternative is to select a highly stratified statewide probability sample of high schools that provides a representative group of schools at each educational level. The schools would be selected so that there was adequate representation of all important types -- for example, urban, suburban, and rural; small, medium, and large; ethnically diverse or homogeneous; and participants and nonparticipants in various categorical aid programs. Any characteristic critical for ensuring the representativeness of the sample and providing a statistically sound basis for estimating statewide effects for appropriate subgroups could be included. From within each school, a sample of students (possibly a sample of the whole) at a given class level would be selected to ensure a reliable basis for analyzing both school-specific and student-specific variables.

This third procedure has a number of strategic and statistical advantages:

1. Analysis of the effect of the same variables in different settings can potentially identify critical institutional or environmental factors that may be susceptible to policy initiatives.

2. Implementation and follow-up efforts can be focused on specific schools.
3. Historical linkages among schools at different levels can be utilized to follow student progress.

Since this procedure seems to provide the greatest potential for answering the types of questions raised in the legislation, the rest of the sampling procedure will assume its use.

Sample size

The size of the study sample depends on the degree to which the data must be disaggregated among groups and the desired accuracy of the sample estimates for the whole population and these subgroups. The only way to ensure 100 percent accuracy, of course, would be to include the whole population in the study, but this would not be financially feasible. The larger the sample, the greater the degree of accuracy but the greater the costs. The optimal sample size is the one that provides the greatest accuracy for the least cost.

Both historical experience and standard statistical methods provide bases for estimating needed sample size based on desired level of accuracy. Thus for the 1983 High School Eligibility Study, the Postsecondary Education Commission set precision of the statewide estimates of the proportion of eligible students at 1 percent and subgroup estimates at 3 percent at the 95 percent confidence level, and these levels required examining the academic records of approximately 15,000 high school graduates, or about 5 percent of the total population. This size sample provided a reliable base for statewide estimates and for subgroup estimates for white, Black, Hispanic, and Asian graduates at the established levels of precision but not for the smaller subgroups of American Indian and Filipino graduates.

If the accuracy levels of 1 percent for statewide estimates and 3 percent for subgroup estimates were acceptable standards for the comprehensive study, the next decision that would be needed is determination of the smallest subgroup for which precise estimates were desired. If the smallest subgroup of high school graduates of interest were no smaller than the number of Asian graduates, a 5 percent sample would be adequate. However, if greater resolution of subgroup analysis were desired -- for example, sex differences among Asian graduates -- or smaller ethnic groups than Asian graduates -- then the 5 percent sample would be inadequate. Using the example of Asian women as the smallest subgroup of interest, with precision set at 3 percent and standard statistical methods, the total needed sample size of high school graduates would be approximately 23,500. Alternatively, if California's eight metropolitan regions were the smallest subgroups of interest, a sample of 15,000 graduates would provide reliable regional estimates but would not yield reliable estimates for any subgroup category within the regions. To compute estimates by major ethnic group within regions, an estimated sample size of approximately 25,000 would be necessary. Any further subdivision of these groups within regions, such as by sex, would require an even larger sample.

A recent analysis of needed longitudinal information on the job situation of California youth recommended an estimated sample size of 30,000 to 50,000 individuals as an optimum basis for investigating students' transition from school and job training to work.

Based on these examples, the estimated sample size for the twelfth-grade cohort of the proposed study should be between 25,000 and 40,000 students; that for a seventh- or eighth-grade cohort should be at least 32,000 to 50,000, and that for a third-grade sample, approximately 35,000 to 60,000. To investigate college-going behaviors and transition to work for college sophomores by major subgroups of interest would require a sample of between 25,000 and 40,000 sophomores -- the same size as that of twelfth graders -- but because of the vast diversity in training and learning experiences encountered by postsecondary students and the vast array of choices they make in directing their activities, a sample of 30,000 to 50,000 would be optimal.

Examples of longitudinal student studies

Issues related to educational persistence and performance and transition from educational institutions to the world of work have been the focus of numerous studies in recent years. Three of these efforts -- one national, one statewide, and one regional are worthy of description here as examples of longitudinal studies.

High School and Beyond

In 1980, the National Center for Education Statistics launched its second national longitudinal study of young people as they pass through the education system and begin adult life. Termed *High School*

and Beyond, the study has surveyed a nationally representative sample of 30,000 high school sophomores and 28,000 seniors about their school experiences, activities, attitudes, plans, selected background characteristics, and language proficiency. Follow-up interview surveys of the same sample regarding their subsequent educational and occupational development occurred in 1982 and 1984, with response rates of 91 and 93 percent, respectively. The Center is currently planning its third national longitudinal study in 1988 which would include a sample of eighth-grade students.

The national study's purpose is very similar to the proposed California study -- to improve "understanding of student development and the factors that determine individual education and career outcomes" and to use such information "for review and reformulation of federal, State, and local policies affecting the transition of youth from school to adult life."

The subsamples of California's high school sophomores and seniors in the national study were representative of these two student populations in the State, but they were not large enough to provide reliable estimates for any subpopulation such as males, females, or major ethnic groups. Thus *High School and Beyond* can provide a useful model for methodology and important questions at the State level, but only a larger scale State study can provide accurate subgroup information for California.

1983 High School Eligibility Study Follow-Up Survey

As mentioned above, in 1983 the California Postsecondary Education Commission undertook a study of high school graduates' eligibility for the University of California and the California State University. An approximate 5 percent sample of 1983 graduates' academic records was selected at random from California's public and private high schools. These transcripts included personal identification of students when submitted to the State Superintendent of Public Instruction and the Commission's Director, but that information was removed to a secured directory file before the transcripts were sent to the segments for analysis of each student's eligibility.

Using the file, Commission staff sent all students a first follow-up questionnaire about their post-high school experiences and about whether they wished to be part of the on-going study. About 35 percent of the sample returned completed questionnaires, and less than 1 percent requested to be eliminated from the study. A year later, 23 percent of the original sample returned a second and more extensive questionnaire in response to two mailings of the questionnaire. Because of this low response rate and known response bias, the survey results are not sufficiently reliable to make statewide generalizations about graduates' behavior, and the small number of respondents who were Black or Asian make any type of subgroup analysis meaningless. The project's financial support was insufficient for implementing any more thorough follow-up efforts. The design of a larger scale statewide study must include adequate support to maintain sample size over the period of the study.

Sacramento area transfer study

In the Sacramento area, the Los Rios Community College District has conducted a pilot study of transfer students in cooperation with California State University, Sacramento, and the University of California, Davis (Renkiewiez, 1985). The study has examined enrollment patterns, personal characteristics, academic performance, and persistence of 1,812 transfer students at the district's three colleges and the two university campuses. The sample size was sufficiently large to provide useful information about subgroups. This study provides an example of how the sharing of information among institutions enhances all of their understanding of students' education behaviors and how they contribute to and support students' achievement of their educational objectives.

Alternative mechanisms for collecting and reporting information

Three major alternative mechanisms exist for administering the proposed study: (1) creating a State longitudinal education study center, (2) assigning study responsibilities to an existing State agency or agencies, or (3) contracting with a professional research corporation for the study with a State agency serving as the contract manager.

State longitudinal education study center

Legislation creating a State longitudinal education study center would define the administrative structure, responsibilities, and authority of the center for collecting, analyzing, and reporting comprehensive student information. As a research center separate

from any existing State agency, it would receive fiscal support under its own budget category in the annual Budget Act.

Such a separate center would have the advantages of stability, independence, and potential long-range efficiency and the disadvantages of slow implementation and potential short-term inefficiency. The statutory process of creating a new agency would be a long one, lengthening the amount of time before important information could be made available. However, if the agency and its mission survived the political process to enactment, it should have developed the political support necessary to maintain its financial support over the full term of the study. Because the center would cooperate with but be independent of any existing educational institution, it could provide objective evaluative information about education programs. In addition, because of the center's unique position in relation to all educational institutions, it would be able to identify and possibly reduce duplication of effort, provide guidance on better coordination of services, and highlight areas of unmet need.

State agency study

Responsibility and authority for the study could be placed in an existing State agency or set of agencies. For example, a cooperative structure could assign responsibility for elementary and secondary school students information to the Program Evaluation and Research Division of the State Department of Education -- the unit currently responsible for the California Basic Educational Data System -- and for postsecondary student information to the Analytic Studies Division of the California Postsecondary Education Commission -- the unit currently responsible for collection of State and federal higher education data.

While statutory authorization to define the scope of the study would still be necessary, the existing administrative structures of the cooperating agencies could be used, thus reducing expenses below those of the previous alternative of creating a separate research center. Fiscal support for the study would be sought through the budget change proposal process of the participating agencies. Because this option would not involve creation of a new entity, implementation of the study would probably be quicker than under the previous alternative, thus yielding useful information more rapidly.

As only one component within an agency budget, however, the study would annually have to compete with existing programs and priorities for adequate personnel and computer support to meet its responsibilities. Furthermore, as an integral part of an agency that might also be responsible for some of the programs to be evaluated, the study might be subject to claims that it lacked impartiality and objectivity -- thus making its results and recommendations suspect. Finally, because the study would essentially be an extension of existing agency activities, the probability that the agency would become more effective and efficient because of its presence might be more remote than in the previous alternative.

Contracted study

Some or all of the study could be completed under contract, with funding appropriated through the regular budgetary process to a State agency that would function as the contract administrator and be responsible for assuring proper and complete contract compliance. This alternative would not require any changes in existing structures and might not even involve the addition of State personnel, depending on the extent of the contract. Its implementation process would be similar to the last alternative, providing useful results in the shortest time. The study contractor would be seen as an objective and impartial evaluator, although the relative distance of professional research organizations from school and college programs might limit their awareness of critical background and environmental data essential for the accurate contextual interpretation of study results. Because funds for the study would be a completely separate budget item, it is unlikely that the study would have to compete with other activities and priorities of the agency administering the contract. But this fact might cause these funds to be highly vulnerable to reduction or elimination in lean years, irreparably damaging the study's ability to fulfill its purposes.

A sound contract would require the contractor to be a highly competent professional research organization with the capacity to conduct the study effectively and efficiently. The contract cost would not be inexpensive, but if the study lasted only five years or so, it would probably be cheaper than creating a separate center or increasing the capacity of State agencies, as the first two alternatives would require. However, if the study were ongoing as a permanent improvement of the State's student information data

base, the economic savings of contracting would be questionable.

The Commission has hired a study administrative consultant to estimate the costs of implementing the study under each of these three alternatives and, where possible, suggest potential savings in existing reporting requirements. The consultant will participate in the advisory committee meetings leading to the feasibility plan, and his estimates will be appended to the plan.

Implementation schedule

Establishing an implementation schedule will require many decisions about the administration and design of the study. However, a number of components of the schedule can already be identified, even if their precise duration cannot be known at this time. They include:

- An expanded feasibility study resulting in a detailed study design;
- Development of legislation to define the administrative structure and reporting responsibilities for the study;
- Submission of budget change proposals for support of the basic study as well as supplemental support needed by the segments to meet their responsibilities in the study;
- Development of study survey forms and identification of specific sampling cohorts;
- Data collection; and
- Report production.

Major issues

Unique student identifier

One of the major obstacles to investigating factors affecting student behavior and choices over time is the absence of a means to identify individuals as they progress from institution to institution. Generally, educational institutions use their own identifying codes for their students that are unique to each institution. When students move to other institutions, their identification numbers are lost and replaced by new ones. Because one of the fundamental goals of the proposed study is to examine students' transition between institutions and segments of education, a means for identifying and tracking students through the education system is essential.

The most common unique identification number of individuals in America is their Social Security number. The consistency with which this number is used yields substantial advantage for matching disparate data bases, but for the proposed study it would entail several logistic and legal disadvantages. Few if any elementary or junior high school students have Social Security numbers. Further, the use of Social Security numbers to identify individuals for other than payroll tax reasons is illegal under federal law. Thus while the inclusion of students' Social Security numbers among the data elements of the study would be useful, it would be inadequate for longitudinal tracking.

An identification code developed specifically for the comprehensive study would have some distinct advantages beyond avoiding these drawbacks of Social Security numbers. Such a code could incorporate identification not only of individual students but also their cohort group, region, and other relevant stratification variables. Once developed, the code numbers could be permanently affixed to students' academic records. School personnel throughout the state could be apprised of the nature of these code numbers and have a standard form on which they could notify the study administrators when students with these codes enroll at their schools.

Privacy of student records

The underlying rationale for restricting the use of Social Security numbers is individuals' right to privacy of confidential information. Much of the information important for a comprehensive study is confidential. Thus the use of an alternative code number does not obviate the legal difficulties concomitant with accessing students' records.

In *Access to Student-Specific Data* (1983), the California Round Table on Educational Opportunity has described federal and California laws limiting access to records, disclosure of information from records, and the subsequent use of this information by third parties. According to the Round Table, at least three options exist under current law for exchanging such information among institutions and segments of education: (1) written consent, (2) legislative exception, and (3) coded identification.

1. *Written consent:* Generally, access to confidential information by third parties is restricted to those

for which the students or their parents or their guardians have given written consent for release. Some student information -- including name, address, date and place of birth, major field of study, dates of attendance, degrees received, and most recent previous institution of attendance -- is "public information" and not subject to general restrictions on access; but other information critical to the comprehensive study -- including ethnicity, family income, courses taken, and grades earned -- is confidential and subject to legal restrictions on access.

Success of the proposed study would depend on obtaining information about a representative sample of students from which generalization about the whole student population can be validly and reliably drawn, yet it is highly unlikely that 100 percent of any sample of students or their legal guardians would provide written consent for the release of confidential information for the study. Even if they had no objections to participating in the study, the mere logistics of obtaining consent forms would be prohibitive. If a significant proportion of the sample declined to participate in the study or failed to permit use of their records, the results would not be reliable for estimating behaviors of the general student population.

2. *Legislative exception:* Sections 49076 and 67143 of the *California Education Code* allow State education officials access to students' records for the evaluation of State or federal programs, and Federal Law 20 USC 1232g (b)(1)(C)(iv) permits access to records of students in federally funded programs or to enforce federal laws in order to evaluate the effectiveness of student affirmative action programs. These statutes further specify that information collected for these purposes must be protected from disclosure to third parties and must be destroyed when no longer needed for the purposes for which it was collected. If the comprehensive study were legislatively mandated for the purpose of evaluating categorical education programs, the limited and protected access would be legal under State law, although the legality of access to the information under federal law would require an opinion from the State Attorney General.

3. *Coded identification:* Problems of invasion of privacy arise when students' unique identity, their name, or any index that could be linked to their name, is made available to a third party along with confidential information. However, if students' names and any other information that could result in their identification were removed from confidential records and replaced with unique code numbers before being submitted to the study staff, the students' right to privacy would not have been breached. This use of unique code numbers would require each institution participating in the study to maintain a longitudinal file of current and former study participants to assist in tracking and contacting them. Such parallel files would, of course, add significant costs to the study.

Validity of information

The interest of the Legislature in more and better information about students arose from its need to choose among competing programs in spending scarce public resources. Recently, a vast array of educational reforms has been implemented in the elementary and secondary schools, primarily related to upgrading student academic achievement as measured by quantity of course work, graduation rates, and performance on standardized tests. In addition, the University of California and the California State University have changed their admission requirements with the aim of reducing the level of their students' underpreparedness. Such educational policy changes intended to affect student behavior at one educational level naturally have implications for educational institutions at all levels.

To be a justifiable expenditure of public resources, the comprehensive study must provide a basis for evaluating the impact of such educational policy changes by gathering data necessary to answer significant questions about their impact. Thus the feasibility plan must identify the questions fundamental to policy evaluation that would remain unanswered in the absence of the study. Then it must determine how most efficiently these questions could be answered, so that policy makers can decide if these answers warrant the cost of the study.

Reliability of information

While validity depends on how well the questions are formed, reliability depends on how well the search for the answers is conducted. The sample must be representative of the populations of interest. Efforts must be implemented to maintain sample size and representativeness throughout the duration

of the study. Further, there must be a basis for assuming some stability in the measurements, whereby under similar circumstances similar results would occur. Without this reliability, the data would not provide a sound basis for establishing statewide policies to address inequities or inadequacies in the educational system.

Timeliness of information

In addition to the validity and reliability of the study's data, the timeliness with which these data are available for improving educational policies and programs is a crucial consideration for the feasibility of the study. The benefits of better information available in the long term must be compared with the alternative activities for which funds could be used today.

Implementing a major longitudinal study, even with the most efficient design, would take several years before it could begin to provide data for decision making and program assessment. Some educational policy makers believe that information currently available is sufficient for implementing action programs for reducing problems of student attrition and program articulation without diverting funds for additional data collection. Other policy makers believe that improving the understanding of students' educational behavior through a comprehensive study will provide a sounder basis for designing better programs and in the long term insure that programmatic funds will result in more effective and efficient education. An example of this view is reflected in a recent report to the Master Plan for Excellence Committee of the State Board of Education outlining an action plan for reducing the drop-out rates from kindergarten through twelfth grade by coordinating existing personnel, resources, and programs of the Department and school districts. The major remaining need identified in the report is better data on actual drop-out rates by districts to measure the progress of their efforts.

Environmental and demographic change

For *All One System: Demographics of Education, Kindergarten Through Graduate School* (1985), Harold Hodgkinson examined the demographic context in which American education will function over the next 15 years. He contends that changes in the composition of the group of students moving through the educational system will change the system faster than anything short of nuclear war. He reviews demographic changes of students in terms of age, racial composition, English language proficiency, and socioeconomic characteristics, and he discusses the implication of these changes for increased demand on educational services and economic development. Designing educational reforms for such environmental and demographic changes is essential to increasing their effectiveness in meeting society's needs. The feasibility plan must recognize the fundamental role of environmental change in policy planning and seek to assure that the comprehensive student information study measures and assesses these changes.

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APPENDIX C — AB 880 Advisory Committee

Representative	*Agency*
James Fulton*	State Department of Education
Robert Harris	State Department of Finance
Joseph Appel*	Shasta Union High School District
Lee Fennell	Association of Independent California Colleges and Universities
Charles McIntyre*	California Community Colleges
Nancy Conrath*	Los Angeles Community College District
Nancy Renkiewiez*	Sacramento City College
Ralph Bigelow*	California State University
Terry Dunn*	California State University
David Cohen*	California State University
A. K. Brugger*	University of California
Laurel Blackman	California Community College Students
Sherry Skelly*	California State Student Association
Kirk Knutsen*	University of California Student Lobby
Paul Holmes	Senate Budget and Fiscal Review Committee
Pamela Spratlen	Assemby Ways and Means Committee
Bill Furry	Minority Ways and Means Committee
Bill Whiteneck	Senate Education Committee
Bill Chavez	Assembly Education Committee
Curtis Richards	Assembly Higher Education Subcommittee
Stuart Marshall	Joint Legislative Budget Committee
Michael Nussbaum*	Joint Legislative Budget Committee
Ray Reinhard	Joint Legislative Budget Committee
Jeanne Ludwig*	California Postsecondary Education Commission
Fred Best*	Project Consultant
John Harrison*	Project Consultant

* Attended intersegmental advisory committee meeting

APPENDIX D — Cost of Implementing a Uniform Student Identification System: A Consultant Report

This consultant report describes the cost estimates for assigning and maintaining unique identifiers for every California student. These estimates are based on the following assumptions:

1. A centralized "Clearinghouse" would be established within a public agency or private corporation responsibility for:
   a. Maintaining a state-wide inventory of students and their identifiers,
   b. Preparing the survey instruments to gather student identifiers for the first time and distributing the instruments to the appropriate institutions,
   c. Key entering/recording student biographic and unique identifier information within the state-level Clearinghouse and auditing the data periodically for accuracy and consistency,
   d. Providing "hot-line" service to schools/colleges/universities (hereinafter "institutions") for the purpose of reassigning identifiers in those instances where a student left the public school/postsecondary system and returned without an identifier, and
   e. Providing copies of Clearinghouse files to *bona fide* educational research organizations and, to the extent feasible, assisting these organizations in the conduct of their studies.

2. Students would be assigned a unique identifier -- California Educational Identifier (CEI) -- upon initial entry to the public school/postsecondary system. Once assigned, this identifier would theoretically remain with the student for the remainder of his or her tenure in California education. In practice, 99 percent of the identifiers would be assigned in the K-3 grades or during the freshman year of enrollment in a public postsecondary educational institution.

3. Administrators in the K-3 grades would be assigned "blocks" of identifiers and would employ numbers from these blocks in assigning student identifiers.

4. During the K-3 initial assignment phase, schools would assign identifiers on a class-by-class basis and transmit full-page class lists (documenting students and their identifiers) to the Clearinghouse for key entry/data recording. Typically such assignment would be undertaken during the census week in the Fall term.

5. Students entering a public California postsecondary educational institution for the first time would be assigned identifiers using preassigned blocks similar to the K-3 procedure. Identifier recording at the postsecondary level would, however, differ from the K-3 procedures in that student identifiers would be recorded on "Institutional Summary Surveys." Here again, new identifiers would only be assigned for freshmen lacking a California identifier and such assignment would be undertaken during the census week in the Fall term.

6. In those instances where a student had attended a California institution but could not recall the student's identifier (e.g., the parents left the state for ten years when the student was in the second grade), the first institution to which the student applied would contact the Clearinghouse "hot line" and provide it with selected student biographic information (refer to item 8).

   Upon receipt of a request to locate an "old" identifier, the Clearinghouse would search it files and notify the institution of either (a) the student's previous identifier or (b) a "special" identifier indicating the student *might* have been assigned two identifiers during his tenure in the California educational system (this special identifier is important because it alerts researchers to the possibility of sampling biases when using such students in their study). After obtaining an identifier from the Clearinghouse, the institution

would employ the number in all subsequent records.

7. Every California public institution would be required, at a minimum, to maintain:

   a. A student's California Educational Identifier (CEI), and

   b. The name/number of the institution where students were enrolled just prior to the student's enrollment at their institution. Failure to record such "backward facing pointers" will literally destroy the effectiveness of the system for longitudinal tracking purposes.

8. The following elements would be maintained by the Clearinghouse for every student:

   a. Student's name as recorded on the student's birth certificate.

   b. Mother's maiden name.

   c. Student's gender.

   d. Student's date of birth.

   Other possible elements are:

   e. Student's ethnicity.

   f. Student's place of birth.

One-time costs associated with identifying students in the K-12 and postsecondary segments

A system similar to the one described above will require either (a) a one-time state-wide census for all grades/levels or (b) a cumulative rolling census conducted for selected grades/levels over a 5 to 10 year span. The following cost estimate assumes a one-time massive state-wide census.

Assuming further, a 1990 implementation date, the Department of Finance's Population Research Division's estimates 5.281 million K-12 students in that year. If one assumes a single survey instrument per class and an average class size of 30 students, the K-12 census effort would generate 176,000 surveys. Allowing 30 characters each for student's, and mother's maiden name, one character for gender, six characters for date of birth, and 23 characters for the California Educational Identifier (this is a worst case estimate) each student entry would require 90 characters of information.

A recent review of survey distribution, collection, key entry, key verification, data editing, and reporting effort with colleagues in the field yielded advice that differed somewhat regarding procedures and surveying techniques but most felt that the survey processing cost for a single class would be approximately $2.00. Using this figure and the 176,000 estimated surveys generates a data collection and processing cost of $352,000.

Turning now to the postsecondary educational side, assuming that the three public segments could survey their student bodies during the Fall term registration period and, given the pre-existence of their automated segmental enrollment systems, CEI could be put in place at little or no incremental cost. Even assuming a $50,000 cost per segment, the total cost of providing CEIs during the initial census period would be $150,000 or less.

Finally, there are a number of "miscellaneous" items that should be accounted for in this project:

- $ 80,000 for computer processing and storage.
- $ 45,000 for telephone "hot line" support.
- $ 65,000 for managerial and secretarial staff.
- $ 25,000 for office space.
- $ 50,000 for incidental expenses such as postage, communications, equipment rental, and the like.

These amounts, when summed, yield a total of $792,000; a figure with an estimated accuracy of ±15%.

Recurring costs associated with identifying students in the K-12 and postsecondary segments

Once established, the CEI program would need to continue to register new students as they either (a) entered the public school system for the first time as kindergarteners/first graders, or (b) entered the public educational system from out of state. The cost estimates for the ongoing program assumed that the full class registration system could be used at the kindergarten level and the institutional registration system used thereafter.

Under such a scenario, all students in the kindergarten grade would be registered (and receive preassigned CEIs) on a class-by-class basis. All other students entering the California public school/university system for the first time would be registered on an exception basis using an institutional survey.

As with the initial surveying effort discussed previously, the recurring program would operate by:

- Assigning identifiers using preassigned blocks to students who had never been enrolled in a California public institution.
- Contacting the "Clearinghouse" to obtain existing CEIs for students reentering the public education system.

The estimated costs attendant to this concept assumed the following:

- All students in kindergarten would be registered using class surveys.
- One third of the students in grades 1-3 would be assigned new CEIs using institutional surveys.
- Five percent of the students in grades 4-9 would be assigned new CEIs using institutional surveys.
- Fifteen percent of the students in grades 10-11 would be assigned new CEIs using institutional surveys.
- Ten percent of the students in grade 12 would be assigned new CEIs using institutional surveys.
- Twenty-five percent of the freshmen and junior level students at the collegiate level would be assigned new CEIs using institutional surveys.
- Five percent of the remaining collegiate level students would be assigned new CEIs using institutional surveys.

Using the same cost figures identified in the previous section and assuming each postsecondary segment could augment its existing enrollment reporting system to accommodate such reporting for $25,000 per segment per year, the recurring cost estimate for the system are as follows:

- Kindergarten - 440,000 students/all requiring CEIs/15,733 surveys = $31,466
- Grades 1-3 - 1,374,000 students/one-third requiring CEIs/15,266 surveys = $30,533
- Grades 4-9 - 2,426,000 students/5 percent requiring CEIs/4,043 surveys = $8,086
- Grades 10-11 - 703,000 students/15 percent requiring CEIs/3,515 surveys = $7,030
- Grade 12 - 283,000 students/10 percent requiring CEIs/943 surveys = $1,886
- Collegiate level - $25,000 per segment = $75,000

Summing these individual components yields an annual surveying cost of $154,000. This figure would, of course, need to be augmented with computer processing and storage, managerial/secretarial staffing, communications, and hot-line support, probably bringing the annualized maintenance cost for the CEI program to approximately $400,000 per year.

CALIFORNIA POSTSECONDARY EDUCATION COMMISSION

THE California Postsecondary Education Commission is a citizen board established in 1974 by the Legislature and Governor to coordinate the efforts of California's colleges and universities and to provide independent, non-partisan policy analysis and recommendations to the Governor and Legislature.

Members of the Commission

The Commission consists of 15 members. Nine represent the general public, with three each appointed for six-year terms by the Governor, the Senate Rules Committee, and the Speaker of the Assembly. The other six represent the major segments of postsecondary education in California.

As of 1986, the Commissioners representing the general public are:

Seth P. Brunner, Sacramento, *Chairperson*
C. Thomas Dean, Long Beach
Seymour M. Farber, M.D., San Francisco
Patricia Gandara, Sacramento
Ralph J. Kaplan, Los Angeles
Roger C. Pettitt, Los Angeles
Sharon N. Skog, Mountain View
Thomas E. Stang, Los Angeles, *Vice Chairperson*
Stephen P. Teale, M.D., Modesto

Representatives of the segments are:

Sheldon W. Andelson, Los Angeles; representing the Regents of the University of California

Claudia H. Hampton, Los Angeles; representing the Trustees of the California State University

Beverly Benedict Thomas, Los Angeles; representing the Board of Governors of the California Community Colleges

Jean M. Leonard, San Mateo; representing California's independent colleges and universities

Willa Dean Lyon, Newport Beach; representing the Council for Private Postsecondary Educational Institutions

Angie Papadakis, Palos Verdes; representing the California State Board of Education

Functions of the Commission

The Commission is charged by the Legislature and Governor to "assure the effective utilization of public postsecondary education resources, thereby eliminating waste and unnecessary duplication, and to promote diversity, innovation, and responsiveness to student and societal needs."

To this end, the Commission conducts independent reviews of matters affecting the 2,600 institutions of postsecondary education in California, including Community Colleges, four-year colleges, universities, and professional and occupational schools.

As an advisory planning and coordinating body, the Commission does not administer or govern any institutions, nor does it approve, authorize, or accredit any of them. Instead, it cooperates with other state agencies and non-governmental groups that perform these functions, while operating as an independent board with its own staff and its own specific duties of evaluation, coordination, and planning,

Operation of the Commission

The Commission holds regular meetings throughout the year at which it debates and takes action on staff studies and takes positions on proposed legislation affecting education beyond the high school in California. By law, the Commission's meetings are open to the public. Requests to address the Commission may be made by writing the Commission in advance or by submitting a request prior to the start of a meeting.

The Commission's day-to-day work is carried out by its staff in Sacramento, under the guidance of its director, Patrick M. Callan, who is appointed by the Commission.

The Commission issues some 30 to 40 reports each year on major issues confronting California postsecondary education. Recent reports are listed on the back cover.

Further information about the Commission, its meetings, its staff, and its publications may be obtained from the Commission offices at 1020 Twelfth Street, Third Floor, Sacramento, CA 98514; telephone (916) 445-7933.

ONE of a series of reports published by the Commission as part of its planning and coordinating responsibilities. Additional copies may be obtained without charge from the Publications Office, California Postsecondary Education Commission, Second Floor, 1020 Twelfth Street, Sacramento, California 98514; telephone (916) 445-7933.

Other recent reports of the Commission include:

85-34 California College-Going Rates, 1984 Update (September 1985)

85-35 Oversight of Out-of-State Accredited Institutions Operating in California: A Report to the California Postsecondary Education Commission Pursuant to Senate Bill 1036 (December 1985)

85-36 Director's Report, December 1985: From Ninth Grade Through College Graduation: Who Makes It in California Education (December 1985)

85-37 Foreign Graduate Students in Engineering and Computer Science at California's Public Universities: A Report to the Legislature in Response to Supplemental Language in the 1985-86 Budget Act (December 1985)

85-38 Instructional Equipment Funding in California Public Higher Education: A Report to the Legislature in Response to Supplemental Language in the 1985-86 Budget Act (December 1985)

85-39 Self-Instruction Computer Laboratories in California's Public Universities: A Report to the Legislature in Response to Supplemental Language in the 1985-86 Budget Act (December 1985)

85-40 Proposed Creation of a California State University, San Bernardino, Off-Campus Center in the Coachella Valley (December 1985)

85-41 Progress of the California Academic Partnership Program: A Report to the Legislature in Response to Assembly Bill 2398 (Chapter 620, Statutes of 1984) (December 1985)

85-42 Alternative Methods for Funding Community College Capital Outlay: A Report to the Legislature in Response to Supplemental Language in the 1985-86 Budget Act (December 1985)

85-43 Faculty Salaries in California's Public Universities, 1985-86: The Commission's 1985 Report to the Legislature and Governor in Response to Senate Concurrent Resolution No. 51 (1965) (December 1985)

86-1 Director's Report, January 1986: Enacted and Vetoed Higher Education Legislation from the 1985-86 Regular Session of the Legislature; Two-Year Bills to be Considered in 1986; 1985 Fiscal Legislation Affecting Higher Education (January 1986)

86-2 Time and Territory: A Preliminary Exploration of Space and Utilization Guidelines in Engineering and the Natural Sciences (February 1986)

86-3 Report of the Intersegmental Task Force on Measles Immunization (completed November 1985; published March 1986)

86-4 Expanding Educational Equity in California's Schools and Colleges: Recommendations of the Intersegmental Policy Task Force on Assembly Concurrent Resolution 83 (March 1986)

86-5 Background for Expanding Educational Equity: A Technical Supplement to the Report of the Intersegmental Policy Task Force on Assembly Concurrent Resolution 83, *Expanding Educational Equity in California's Schools and Colleges* (March 1986)

86-6 Director's Report, March 1986: Overview of the 1986-87 Governor's Budget for Postsecondary Education in California (March 1986)

86-7 Standardized Tests Used for Higher Education Admission and Placement in California: A Report Published in Accordance with Senate Bill 1758 (Chapter 1505, Statutes of 1984) (March 1986)

86-9 The Need for Statewide Long-Range Capital Outlay Planning in California: An Issue Paper Prepared for the California Postsecondary Education Commission by Frank M. Bowen (March 1986)